

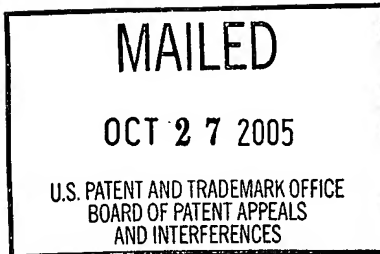
The opinion in support of the decision being entered today was not written  
for publication and is not binding precedent of the Board.

## UNITED STATES PATENT AND TRADEMARK OFFICE

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### BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

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Ex parte PAUL B. KOENEMAN  
and  
MARK A. TRAUTMAN

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Appeal No. 2005-2353  
Application No. 10/028,860

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ON BRIEF

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Before McQUADE, NASE, and BAHR, Administrative Patent Judges.  
NASE, Administrative Patent Judge.

### DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1, 2, 4 to 7, 12 to 16 and 27 to 29. Claims 8 to 11, 17 to 20 and 22 to 26 have been allowed. Claim 3 has been objected to as depending from a non-allowed claim. Claim 21 has been canceled.

We REVERSE.

BACKGROUND

The appellants' invention relates to the field of integrated circuit packages. In particular, the invention relates to an apparatus and method of cooling an integrated circuit package (specification, p. 1). A copy of the claims under appeal is set forth in the appendix to the appellants' brief.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Patel	5,396,403	Mar. 7, 1995
Fujisaki et al. (Fujisaki)	5,763,950	June 9, 1998
Lin et al. (Lin)	6,188,578	Feb. 13, 2001

Claims 1, 2, 6, 7, 12 to 16 and 27 to 29 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Fujisaki.

Claim 4 stands rejected under 35 U.S.C. § 103 as being unpatentable over Fujisaki in view of Patel.

Claim 5 stands rejected under 35 U.S.C. § 103 as being unpatentable over Fujisaki in view of Patel and Lin.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the above-noted rejections, we make reference to the answer (mailed January 26, 2005) for the examiner's complete reasoning in support of the rejections, and to the brief (filed August 16, 2004) for the appellants' arguments thereagainst.

#### OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, to the applied prior art references, and to the respective positions articulated by the appellants and the examiner. As a consequence of our review, we make the determinations which follow.

#### **The anticipation rejection**

We will not sustain the rejection of claims 1, 2, 6, 7, 12 to 16 and 27 to 29 under 35 U.S.C. § 102(b) as being anticipated by Fujisaki.

Anticipation under 35 U.S.C. § 102 requires that each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. If the prior art reference does not expressly set forth a particular element of the claim, that reference still may anticipate if that element is "inherent" in its disclosure.

To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. See In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999).

The appellants argue that Fujisaki does not disclose a cooling fluid directly contacting and moving laterally across the **active surface**<sup>1</sup> of an integrated circuit die as set forth in the claims under appeal. We agree. Fujisaki teaches that cooling fluid directly contacts and moves laterally across the top surface of the semiconductor element. However, there is no teaching in Fujisaki that the top surface of the semiconductor element is an active surface. In fact, in view of heat fins and heat sinks being mounted to the top surface, it is likely the top surface of the semiconductor element is an inactive surface. As to the bottom surface of the semiconductor element (which appears to be an active surface), there is no disclosure in Fujisaki that the cooling fluid can directly contact and move laterally across the bottom surface of the semiconductor element. In this regard, it is possible that the solder connection between

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<sup>1</sup> The "active surface" of an integrated circuit die is the side of the integrated circuit die on which electrical components are formed. See page 1 of the appellants' specification.

the semiconductor element and the underlying substrate would prevent the cooling fluid from directly contacting and moving laterally across the bottom surface of the semiconductor element. As such, claims 1, 2, 6, 7, 12 to 16 and 27 to 29 are not anticipated by Fujisaki.

For the reasons set forth above, the decision of the examiner to reject claims 1, 2, 6, 7, 12 to 16 and 27 to 29 under 35 U.S.C. § 102(b) is reversed.

#### **The obviousness rejections**

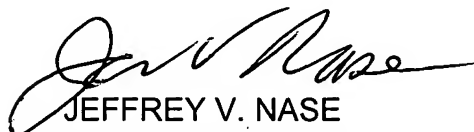
We have also reviewed the references to Patel and Lin additionally applied in the rejection of claims 4 and 5 but find nothing therein which makes up for the deficiency of Fujisaki discussed above. Accordingly, the decision of the examiner to reject claims 4 and 5 under 35 U.S.C. § 103 is reversed.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1, 2, 6, 7, 12 to 16 and 27 to 29 under 35 U.S.C. § 102(b) is reversed and the decision of the examiner to reject claims 4 and 5 under 35 U.S.C. § 103 is reversed.

REVERSED

  
JOHN P. McQUADE  
Administrative Patent Judge

  
JEFFREY V. NASE  
Administrative Patent Judge

  
JENNIFER D. BAHR  
Administrative Patent Judge

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